



## 2012 "VOLUNTEERS WORKING WITH INVASIVES" GRANTS REPORT FORM

### Display Report

#### PROJECT BACKGROUND INFORMATION

<b>Project Title:</b>	Palmyra Atoll NWR Invasive Plant Management: Eradicate/Control	
<b>Region:</b> <b>Use region number ONLY</b>	1	
<b>Station:</b>	Palmyra Atoll NWR	
<b>Contact Person:</b> Name and Phone Number	Amanda Meyer 808-792-9551	
<b>Project Description:</b> (Up to 250 words)	Remote atoll ecosystems are havens of biological diversity, but vulnerable to ecological invasion. The prosperity of the plants and animals that inhabit remote atoll ecosystems are dependent on an intact healthy ecosystem free of invasive species. On Palmyra, invasive plants are unraveling well established relationships between terrestrial organisms, by crowding out native species and completely altering the landscape and habitat. Several of these invasive species are nitrogen fixing and/or allelopathic, and can cause wholesale ecosystem shifts when they become dominant. This project will initiate a proactive, adaptive and integrated invasive species management approach to curtail and prevent the further influence of invasive plants and trees on private and refuge lands at Palmyra. This two year project will focus on: 1) Restoration of biological habitat integrity through chemical and mechanical control/eradication of focal invasive species; 2) Volunteer training in the detection, eradication, and control methods so that no lag time occurs by the response team following the detection of an invasion; 3) Early Detection Rapid Response efforts, as outlined in the Biosecurity Plan for Palmyra, to detect new invasive species and increase the likelihood that invasions are localized and within containment/eradication capabilities; and 4) Adaptive Management through post-treatment monitoring and sampling to measure the extent to which our actions contribute to positive change and assure the highest return on our investments.	
<b>List of Invasives Species Targeted:</b>	<b>Common Name</b>	<b>Scientific Name</b>
	lead tree	<i>Leucaena leucocephala</i>
	Cocnut Palm	<i>Cocos nucifera</i>
	Sour bush	<i>Pluchea indica</i>
	Indian Almond	<i>Terminalia catappa</i>
<b>Project Status:</b>	InProgress	
<b>Project Completion Date</b>	10/31/2013	

or Estimated Completion  
Date: (mm/dd/yyyy)

## VOLUNTEER INFORMATION

<b>Volunteer Affiliation:</b> (Check all that apply)	VA_Other
<b>Volunteer Involvement:</b> Describe the type of work the volunteers performed. (Up to 150 words)	Volunteers continue to work on refuge lands to eradicate and control invasive species. Volunteers were trained to identify invasive species, and were trained in EDRR protocols. In the field volunteers drill up to 10 holes, two inches deep, into Coconut palms at the base of the tree and inject herbicide into the drilled holes. Cordless drills and backpack sprayers were used. Seedlings of invasive plants and trees were also pulled by hand or treated with herbicide. Treated trees were marked with tree tags for monitoring and follow up purposes. Indian almond trees were cut down with hand saws and removed. Pluchea plants were sprayed with herbicide and pulled by hand once dead. Haole koa were stump cut and then treated with herbicide.
<b>Total Number of Volunteers:</b>	5
<b>Total Number of Volunteer Hours:</b>	300
<b>Partnerships:</b> List both new and existing partnerships utilized in this project. (Up to 150 words).	The Palmyra Atoll NWR is fortunate to have established USFWS partnerships with The Nature Conservancy (TNC) and nine academic institutions that comprise the Palmyra Atoll Research Consortium (PARC). Volunteers from USFWS, TNC, and PARC continue to work on refuge lands to eradicate and control invasive species.

## PROJECT RESULTS

<b>Project Results:</b> Give an overview of the results of the project. Include quantifiable measure of success, such as maps produced, efficacy of control measures, number of sites where invasions were detected early and responded to, number of community contacts, etc. (Up to 250 words).	The 680 acres of Palmyra Atoll is continually monitored for invasive species. Haole Koa, Indian almond and Ironwood are found only on Cooper Island; Coconut palms are found throughout the atoll, in some areas comprising almost 100% of the forest. The Haole Koa Project highlights the success we have had in removal and prevention of reintroductions. Control of Indian almond continues around the camp area. Approximately 3,500 Coconut palms and seedlings were removed from 21 acres in 2011, and these areas were maintained in 2012 by treating 2658 coconut seedlings. Eight islands have been heavily targeted for Coconut palm control/eradication and maintenance of seedlings, and 4 of those islands remain free of Coconut palms. These islands were targeted due to their healthy and established native forests. With the coconut palms removed the native trees can grow and recolonize the new space. The removal of Coconut palms in densely forested areas allows for the few native species to reestablish in these areas. Significant portions of the atoll are densely populated by coconut palms which may form monotypic stands completely crowding out and eliminating native species. Where coconut palms have been treated, native species have been observed to thrive and recruit naturally with the increased habitat and decrease in competition. Continued monitoring and removal of invasive species in both early and late stages is critical in restoring the ecosystem at Palmyra Atoll. Native plant propagation and out-planting occurred in areas freed of invasive species. Species out-planted include Barringtonia asiatica, Cordia subcordata, Hernandia numphaeifolia, Ipomoea violacea and Pisonia grandis. Small Pisonia saplings outplanted in 2011 are well established and over 10 ft high.
<b>Number of Acres Treated:</b>	42
<b>Number of Acres Inventoried and/or Mapped:</b>	100
<b>Number of Acres Restored:</b>	21

## BUDGET INFORMATION

**Budget:** Account for funds in broad categories such as equipment, volunteer stipends, travel, coordinator salary/contract, etc.

<b>Total Grant Amount:</b>	\$ \$18,000.00
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### Breakdown of Expenditures:

Category	Total \$ Spent	% of Total Grant
Equipment / Supplies		
Chemical	\$1,000.00	6
Biocontrol Agents		
Travel	1,700.00	94
Volunteer Stipends		
Volunteer Coordinator Salary/Contract		
Restoration Materials		
Other		
<b>TOTAL</b>	<b>\$18,000.00</b>	<b>100</b>

<b>Recommendations:</b> (OPTIONAL) How useful was this program for meeting refuge invasive species objectives and how can it be improved?	This project is starting to gain momentum, and it is very exciting. Years two and three of the grant showed head way in our battle against the encroachment of invasive species on the native forests of Palmyra. This is a long term project that will take many years of control, eradication and maintenance, but without volunteers it is impossible. This grant is imperative to keep our invasive species detection, control and eradication program in operation. The amount of acres covered may seem small, but these are areas with close to 100% invasive plant species and the removal of invasive has opened up many acres or habitat for native plants to thrive. The hard work of the volunteers continues to further the mission of the Service and the refuge system, and restore the native forests of the refuge. Palmyra Atoll NWR is very remote and is staffed by only one FWS person. The main obstacle to field work is time and man power. With the funding from this grant the refuge manager can bring in volunteers and house them at the remote field site. Thank you for giving Palmyra this chance by funding our project!
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- [Return to Main Menu](#) -